

Nucleotide and Amino Acid Sequences of Rn HICP

GACGCTTCTG ATCTCCAGAG GACCCTGGGG TGGGACAGGG GCCTTGGCAA GGCTGCAGCC	60
GCTGGGCAGT GGCTTGAAT GGAGGTCTTT ATTACTGGGA ACTGAGGAGC TAAGAGGCTC	120
CTGTCAGCTT GTCCTAAAGT CTTAGCACTT GTGGTGGCTT GGGCTTCACA CACTGTCAGA	180
CACCTTCGTG GTGGCCTCCA CGGCCTCACC TTCAGGTTTG AAGCTGGCTC CACAAGGGAC	240
ACGGTGAC ATG AGG GGC AGC CCA CTG ATC CAT CTT CTG GCC ACT TCC TTC	290
Met Arg Gly Ser Pro Leu Ile His Leu Leu Ala Thr Ser Phe	
1 5 10	
CTC TGC CTT CTC TCA ATG GTG TGT GCC CAG CTG TGC CGG ACA CCC TGT	338
Leu Cys Leu Leu Ser Met Val Cys Ala Gln Leu Cys Arg Thr Pro Cys	
15 20 25 30	
ACC TGT CCT TGG ACA CCA CCC CAG TGC CCA CAG GGG GTA CCC CTG GTG	386
Thr Cys Pro Trp Thr Pro Pro Gln Cys Pro Gln Gly Val Pro Leu Val	
35 40 45	
CTG GAT GGC TGT GGC TGC TGT AAA GTG TGT GCA CGG AGG CTG GGG GAG	434
Leu Asp Gly Cys Gly Cys Cys Lys Val Cys Ala Arg Arg Leu Gly Glu	
50 55 60	
TCC TGC GAC CAC CTG CAT GTC TGC GAC CCC AGC CAG GGC CTG GTT TGT	482
Ser Cys Asp His Leu His Val Cys Asp Pro Ser Gln Gly Leu Val Cys	
65 70 75	
CAG CCT GGG GCA GGC CCT GGC GGC CAT GGG GCT GTG TGT CTC TTG GAT	530
Gln Pro Gly Ala Gly Pro Gly Gly His Gly Ala Val Cys Leu Leu Asp	
80 85 90	
GAG GAT GAC GGT AGC TGT GAG GTG AAT GGC CGC AGG TAC CTG GAT GGA	578
Glu Asp Asp Gly Ser Cys Glu Val Asn Gly Arg Arg Tyr Leu Asp Gly	
95 100 105 110	
GAG ACC TTT AAA CCC AAT TGC AGG GTC CTG TGC CGC TGT GAT GAC GGT	626
Glu Thr Phe Lys Pro Asn Cys Arg Val Leu Cys Arg Cys Asp Asp Gly	
115 120 125	
GGC TTC ACC TGC CTG CCG CTG TGC AGT GAG GAT GTG CGG CTG CCC AGC	674
Gly Phe Thr Cys Leu Pro Leu Cys Ser Glu Asp Val Arg Leu Pro Ser	
130 135 140	
TGG GAC TGC CCA CGC CCC AAG AGA ATA CAG GTG CCA GGA AAG TGC TGC	722
Trp Asp Cys Pro Arg Pro Lys Arg Ile Gln Val Pro Gly Lys Cys Cys	
145 150 155	
CCC GAG TGG GTA TGT GAC CAG GGA GTG ACA CCG GCG ATC CAG CGC TCC	770
Pro Glu Trp Val Cys Asp Gln Gly Val Thr Pro Ala Ile Gln Arg Ser	
160 165 170	
ACG GCG CAA GGA CAC CAA CTT TCT GCC CTT GTC ACT CCT GCC TCT GCT	818
Thr Ala Gln Gly His Gln Leu Ser Ala Leu Val Thr Pro Ala Ser Ala	
175 180 185 190	
GAT GCT CCT TGT CCA AAT TGG AGC ACA GCC TGG GGC CCC TGC TCA ACC	866

FIGURE 1

Nucleotide Sequence Encoding Mature HICP and the Amino Acid Sequence of Mature HICP

CAG	CTG	TGC	CGG	ACA	CCC	TGT	ACC	TGT	CCT	TGG	ACA	CCA	CCC	CAG	TGC	48
Gln	Leu	Cys	Arg	Thr	Pro	Cys	Thr	Cys	Pro	Trp	Thr	Pro	Pro	Gln	Cys	
1				5					10					15		
CCA	CAG	GGG	GTA	CCC	CTG	GTG	CTG	GAT	GGC	TGT	GGC	TGC	TGT	AAA	GTG	96
Pro	Gln	Gly	Val	Pro	Leu	Val	Leu	Asp	Gly	Cys	Gly	Cys	Cys	Lys	Val	
			20					25					30			
TGT	GCA	CGG	AGG	CTG	GGG	GAG	TCC	TGC	GAC	CAC	CTG	CAT	GTC	TGC	GAC	144
Cys	Ala	Arg	Arg	Leu	Gly	Glu	Ser	Cys	Asp	His	Leu	His	Val	Cys	Asp	
		35					40					45				
CCC	AGC	CAG	GGC	CTG	GTT	TGT	CAG	CCT	GGG	GCA	GGC	CCT	GGC	GGC	CAT	192
Pro	Ser	Gln	Gly	Leu	Val	Cys	Gln	Pro	Gly	Ala	Gly	Pro	Gly	Gly	His	
	50					55					60					
GGG	GCT	GTG	TGT	CTC	TTG	GAT	GAG	GAT	GAC	GGT	AGC	TGT	GAG	GTG	AAT	240
Gly	Ala	Val	Cys	Leu	Leu	Asp	Glu	Asp	Asp	Gly	Ser	Cys	Glu	Val	Asn	
65					70					75					80	
GGC	CGC	AGG	TAC	CTG	GAT	GGA	GAG	ACC	TTT	AAA	CCC	AAT	TGC	AGG	GTC	288
Gly	Arg	Arg	Tyr	Leu	Asp	Gly	Glu	Thr	Phe	Lys	Pro	Asn	Cys	Arg	Val	
				85					90					95		
CTG	TGC	CGC	TGT	GAT	GAC	GGT	GGC	TTC	ACC	TGC	CTG	CCG	CTG	TGC	AGT	336
Leu	Cys	Arg	Cys	Asp	Asp	Gly	Gly	Phe	Thr	Cys	Leu	Pro	Leu	Cys	Ser	
			100					105					110			
GAG	GAT	GTG	CGG	CTG	CCC	AGC	TGG	GAC	TGC	CCA	CGC	CCC	AAG	AGA	ATA	384
Glu	Asp	Val	Arg	Leu	Pro	Ser	Trp	Asp	Cys	Pro	Arg	Pro	Lys	Arg	Ile	
		115					120					125				
CAG	GTG	CCA	GGA	AAG	TGC	TGC	CCC	GAG	TGG	GTA	TGT	GAC	CAG	GGA	GTG	432
Gln	Val	Pro	Gly	Lys	Cys	Cys	Pro	Glu	Trp	Val	Cys	Asp	Gln	Gly	Val	
	130					135					140					
ACA	CCG	GCG	ATC	CAG	CGC	TCC	ACG	GCG	CAA	GGA	CAC	CAA	CTT	TCT	GCC	480
Thr	Pro	Ala	Ile	Gln	Arg	Ser	Thr	Ala	Gln	Gly	His	Gln	Leu	Ser	Ala	
145					150					155					160	
CTT	GTC	ACT	CCT	GCC	TCT	GCT	GAT	GCT	CCT	TGT	CCA	AAT	TGG	AGC	ACA	528
Leu	Val	Thr	Pro	Ala	Ser	Ala	Asp	Ala	Pro	Cys	Pro	Asn	Trp	Ser	Thr	
				165					170					175		
GCC	TGG	GGC	CCC	TGC	TCA	ACC	ACC	TGT	GGG	CTG	GGC	ATA	GCC	ACC	CGA	576
Ala	Trp	Gly	Pro	Cys	Ser	Thr	Thr	Cys	Gly	Leu	Gly	Ile	Ala	Thr	Arg	
			180					185					190			
GTG	TCC	AAC	CAG	AAC	CGA	TTC	TGC	CAA	CTG	GAG	ATC	CAA	CGC	CGC	CTG	624
Val	Ser	Asn	Gln	Asn	Arg	Phe	Cys	Gln	Leu	Glu	Ile	Gln	Arg	Arg	Leu	
		195					200					205				
TGT	CTG	CCC	AGA	CCC	TGC	CTG	GCA	GCC	AGG	AGC	CAC	AGC	TCA	TGG	AAC	672
Cys	Leu	Pro	Arg	Pro	Cys	Leu	Ala	Ala	Arg	Ser	His	Ser	Ser	Trp	Asn	
	210					215					220					

FIGURE 2

AGT GCT TTC
Ser Ala Phe
225

681

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FIGURE 2 (Continued)

CCN Family Members

MODULE I : IGFBP Domain

	28	45	46	60	61	75	76	90	91	100
1 HICP	QLCRTPCT--CP-WTPPQC	-PQGVPLVLDGCGCC	KVCARRLGESCDHLH	VCDPSQGLVCQPGAG	PGHGAVCLL					
2 CTGF	QDCSAQCQ--CAAEAPHC	-PAGVSLVLDGCGCC	RVCAKQLGELCTERD	PCDPHKGLFCDFGSP	ANRKIGVCTA					
3 NOV	LRCPSRCPKCPISIS-PTC	AP-GVRSVLDDGSCC	PVCARQGESCSSEMR	PCDQSSGLYCDRSAD	PNNQTGIGMV					
4 CYR61	-TCPAACH--CPLEA-PKC	AP-GVGLVRDGGCC	KVCAKQLNEDCSKTQ	PCDHTKGLECNFGAS	STALKGICRA					

MODULE II : vWEC Domain

	101	120	121	135	136	150	151	165	166	180								
1 HICP	DDGSC	EVNG	RRLD	GETFKP	NCRVLC	RCDG	GFTC	LPLC	SEDV	RLPS	WDC	PRPK	RIQV	PGKC	CPE	WVC	---	D-Q
2 CTGF	DGAPC	VFGS	VYRS	GESFQS	SCKYQ	CTCL	DGAVGC	VPLCS	MDV	RLPS	PDC	PFPR	RVKL	PGKC	CKE	WVC	---	DEP
3 NOV	EGDNC	VFDG	VIYR	NGEKFFP	NCQYF	CTCR	DGQIGC	LPRC	LDV	LLPG	PDC	PAPR	KVAV	PGEC	CEK	WTCGS	---	DEQ
4 CYR61	EGRPCE	YNSR	IYQN	GESFQP	NCKHQ	CTCI	DGAVGC	IPLCP	QELSL	PNLGC	PNPRL	VKV	SGQC	CEE	WVC	DEDS	IKDSL	DDQ

MODULE III : TSP1 Domain

	240	250	265	280	298
1 HICP	PCPNWSTAWG	PCSTTCGLGIATRVS	NQNRFQCLEIQRRLC	LPRPCLAAARSHSSWNSAF-	
2 CTGF	NCLVQTTWS	ACSKTCGMGISTRVT	NDNTFCRLEKQSRLC	MVRPCEADLEENIK-KGKK	
3 NOV	NCIEQTTWS	ACSKSCGMGVSTRVT	NRNRQCEMVKQTRLÇ	IVRPCEQEPEEVTDKKGKK	
4 CYR61	KCIVQTTWS	QCSKSCGTGISTRVT	NDNPECLVLKETRIC	EVRFÇGQPVYSSLK-KGKK	
	*	*	*	*	*

FIGURE 3

Northern Blot Analysis of HICP Expression in Rat Aorta Smooth Muscle Cells

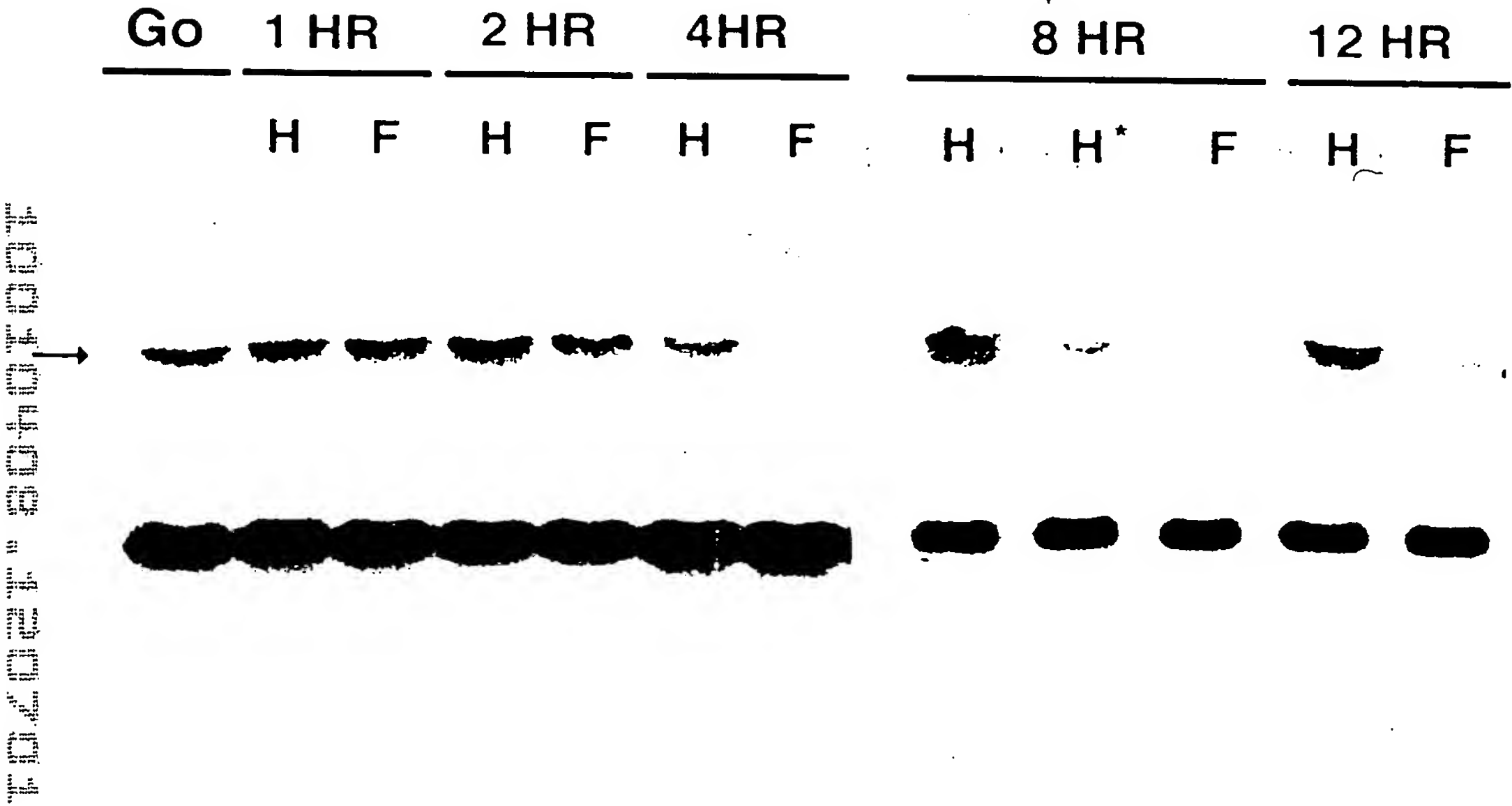


FIGURE 4

DNA Synthesis in Rat Aorta Smooth Muscle Cells

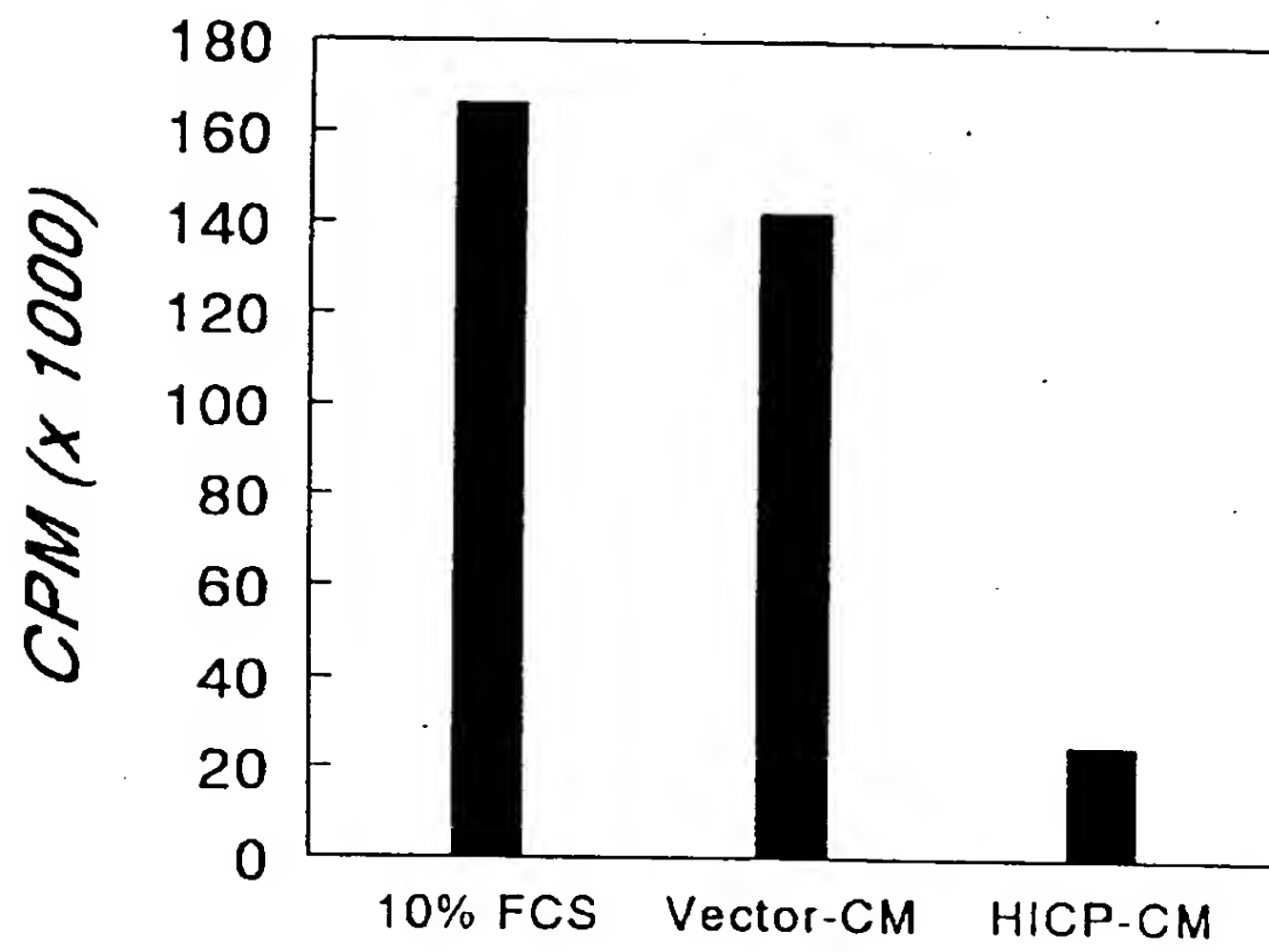


FIGURE 5